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NOTICE OF ALLOWANCE AND FEE(S) DUE

69316 7590 01/13/2011

MICROSOFT CORPORATION
ONE MICROSOFT WAY
REDMOND, WA 98052

EXAMINER

CARTER III, ROBERT E

ART UNIT

PAPER NUMBER

2629

DATE MAILED: 01/13/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/559,891	12/06/2005	Adrian Robert Leigh Travis	324003.07	2859

TITLE OF INVENTION: SCANNING BACKLIGHT FOR FLAT-PANEL DISPLAY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	04/13/2011

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

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nonprovisional	NO	\$1510	\$300	\$0	\$1810	04/13/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
CARTER III, ROBERT E.	2629	345-102000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____
Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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MICROSOFT CORPORATION
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REDMOND, WA 98052

2629
DATE MAILED: 01/13/2011

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 440 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 440 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability**Application No.**

10/559,891

Examiner

ROBERT E. CARTER III

Applicant(s)

TRAVIS, ADRIAN ROBERT LEIGH

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE filed on 11/12/2010.
2. ☒ The allowed claim(s) is/are 1-3, 6, 8, 11-14, and 17.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date ____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

Allowable Subject Matter

Claims 1-3, 6, 8, 11-14, and 17 allowed.

The following is an Examiner's statement of reasons for allowance:

The present invention is directed to an illuminator system for a flat panel display.

Claim 1, identifies the uniquely distinct features:

"a plurality of N light arrays wherein each light array is configured to provide light that is substantially co-extensive with the back face of the display along the X-axis;

a linear taper of the input face of the triangular input wedge that, in combination with an angle relative to the input wedge of incoming light from an i^{th} light array of the plurality of N light arrays, is configured to direct the incoming light from the i^{th} light array to emerge from a face of the slab waveguide over only an i^{th} portion of N portions of the back face of the display, wherein each of the N portions is substantially co-extensive with the back face of the display along the X-axis, and wherein each of the N portions are a different portion of the back face of the display than any other of the N portions;

an illuminator system controller configured to synchronize with a controller of the display wherein the illuminator system controller turns off a previously turned-on light array of the plurality of N light arrays and turns on the i^{th} light array of the plurality of N light arrays in response to the controller of the display writing to a corresponding i^{th}

portion of N corresponding portions of the display, and wherein the illuminator system does not utilize any display image data”

Claim 12, identifies the uniquely distinct features:

“wherein each light array of the plurality of N light arrays provides light that is substantially co-extensive with the back face of the display along the X-axis; and wherein the injecting light comprises turning off a previously turned-on light array of the plurality of N light arrays and turning on an i^{th} light array of the plurality of N light arrays in response to writing to a corresponding i^{th} portion of N portions of the display, ...and wherein a linear taper of the input face of the input linear wedge, in combination with an angle relative to the input wedge of the i^{th} light array of the plurality of N light arrays, directs incoming light from the i^{th} light array to emerge from a face of the slab waveguide over only an i^{th} portion of N portions of the back face of the display, and wherein each of the N portions of the back face of the display is substantially co-extensive with the back face of the display along the X-axis, and wherein each of the N portions of the back face of the display are a different portion of the back face of the display than any other of the N portions of the back face of the display, and wherein the method for illuminating does not utilize any display image data.”

The closest prior art, Irwin (US Patent # 4,978,952) teaches an image display system with a tapered waveguide (Fig. 2, #20), a plurality of N light arrays (Figs. 2, 6,

#25) providing light to the waveguide along a X-axis of the display and emerging from the display along the X-axis (Figs. 3 & 4), and a liquid crystal shutter (Fig. 2, #30) in front of the waveguide. Irwin further teaches scanning the plurality of N light arrays in both the horizontal and vertical directions (Col. 5, lines 16-32).

However, Irwin does not teach the N light arrays corresponding to an N number of different portions of the shutter, or the system turning off a previously turned on light array. Furthermore, Irwin scans in the horizontal direction as well as the vertical direction, meaning the lights in the i^{th} light array will be turned on over time rather than all at once when writing to a corresponding i^{th} portion of the display. Lastly, the display system of Irwin relies on the plurality of light arrays to provide color image data to complete the displayed image, while claim 1 explicitly states that the illuminator system does not utilize any display image data.

Sakaguchi et al. (US Patent # 6,448,951) teaches an image display system with a tapered waveguide (Fig. 4, #18), a plurality of N light arrays (Fig. 4, 3A [LEDs B/L#0 - B/L#2], 3B [LEDs B/L#3 - B/L#5], 3C [LEDs B/L#6 - B/L#8]) providing light to the waveguide along a Y-axis of the display, and a liquid crystal display (Fig. 1, #3) in front of the waveguide.

Sakaguchi et al. further teaches light from the i^{th} light array to emerging from a face of the slab waveguide over only an i^{th} portion of N portions of the back face of the display (Fig. 4, 3A, 3B, 3C), wherein each of the N portions is substantially co-extensive

with the back face of the display along the X-axis, and wherein each of the N portions are a different portion of the back face of the display than any other of the N portions;

an illuminator system controller configured to synchronize with a controller of the display wherein the illuminator system controller turns off a previously turned-on light array of the plurality of N light arrays and turns on the I^{th} light array of the plurality of N light arrays in response to the controller of the display writing to a corresponding I^{th} portion of N corresponding portions of the display, and wherein the illuminator system does not utilize any display image data (Col. 5, line 45 – Col. 6, line 2).

However, Sakaguchi et al. does not teach the plurality of illuminators being positioned along the X-axis or providing light to the waveguide along the X-axis.

Furthermore, Sakaguchi et al. teaches a field sequential backlighting system which does not utilize any display image data, while Irwin teaches a horizontal and vertical scanning color-mixed backlighting system that provides a portion of image data to the display. Because these systems are so vastly different, any attempt to combine them to meet all the claim limitations of claims 1 or 12 would destroy one or both references in the process. For example, if one were to attempt to use the driving scheme of Sakaguchi et al., which teaches:

- 1) corresponding light arrays and display portions
- 2) turning off a previously turned on light array
- 3) not using the illuminator to provide any display image data

in the structure of Irwin, the display functionality of Irwin would be destroyed because it requires the illuminator to provide a portion of the image data.

Travis (WO 01/72037) teaches an image projection system with a tapered waveguide (Fig. 2), using a small display (Figs. 2, #2a) at the bottom of the system providing an image to the waveguide along a X-axis of the display and emerging from the display along the X-axis (Fig 13).

Travis does not teach how the small display is driven to determine if or how the display is scanned.

Like Irwin, (Fig. 2) Travis teaches a display system, rather than a backlight, and Claims 1 and 12 explicitly states that the illuminator system does not utilize any display image data.

Travis does teach an alternate embodiment in Fig. 11 where the projection system can be configured to be a backlight, however, the display is replaced by a single static backlight tube, eliminating any possibility of scanning of the backlight.

Furthermore all the embodiments of Travis use a non-tapered slab waveguide (Fig. 2, #3) and other optics (Fig. 2, #2b, 6, 4, 5a, 5b) in order to properly inject the light into the tapered waveguide, whereas claims 1 and 12 requires the waveguide to be linearly tapered along the Y-axis, and a triangular input wedge being part of and protruding from the thick end of the waveguide. Therefore claims 1 and 12 do not allow for the extra optics in Travis.

N. Fisekovic "Improved Motion-Picture Quality AM-LCDs Using Scanning Backlight", Proc. Asia Display/IDW 2001, Oct. 2001, p. 1637-1640, XP009036254

Teaches a backlight scanning system with a plurality of conventional backlight tubes space out across the back of the display.

Since Travis teaches a single tube backlight illuminating the thin bottom of a waveguide, and Fisekovic teaches a plurality of tubes illuminating the entire back of a display panel without a waveguide, the backlight scanning system of Fisekovic could not be applied to Travis.

Similarly, the scanning backlight system of Sakaguchi et al. illuminates the side of the waveguide rather than the bottom, such that if applied to the bottom as in Travis would create vertical rows of light, whereas claims 1 and 12 requires horizontal rows of light output from the waveguide.

Therefore the prior art, either singularly or in combination, fails to anticipate or render the above limitations of claims 1 or 12 obvious.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT E. CARTER III whose telephone number is (571)270-3006. The examiner can normally be reached on 9AM - 5:30PM Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on 571-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629

/R.E.C./